Vélo Cargo E250

Owner's Manual

Operation

Maintenance

Vélo Electrique Ltd

Poole

Dorset, UK

Web: www.veloelectrique.co.uk

E: info@veloelectrique.co.uk

Velo Electrique® and Velo Cargo® are registered trademark ofVelo Electrique Ltd.

© Vélo Electrique, 2013

Date: 1 July 2013 CD 1001

Table of amendments

Issue number	Amendment summary	Date
1.0	Initial issue	1 July 2013

1 Introduction 5
2 Important safety instructions 5
2.1 Disclaimer 5
2.2 Symbols used in this manual 5
2.3 General safety instructions 6
2.3.1 UK Standards Compliance 6
2.3.2 European Standards Compliance 6
2.3.3 Electrical Modifications 7
2.3.4 Mechanical Modifications 7
3 General description 7
4 Specifications 8
4.1 Performance (Speed and Range) 10
4.2 Performance (Battery Lifespan) 10
5 Operation 11
5.1 Pre ride safety checks 11
5.1.1 Check the brakes 11
5.1.2 Check the tyres are inflated to the correct pressure 11
5.1.3 Adjusting the handlebars 11
Removing the battery 12
5.2 Removing and charging the battery 12
5.2.1 The battery charger 12
5.2.2 Turning the battery on and off and removing from the cycle 13
5.2.3 Refitting the battery 14
5.3 Adjusting the saddle 14
5.4 Check all nuts and bolts are secure 15
5.4.1 Wheelnuts 15
5.4.2 Cargo box pivot bearing nut 15
6 Packing List 15
6.1 Recommended tools 15
7 Riding the Vélo Cargo for the first time. 17
7.1 Pulling off on level ground 17
7.2 Pulling off on a hill 18
7.2.1 Is the hill too steep???? 19
7.3 Cornering 19
7.3.1 Entering a turn. 19
7.3.2 Whilst in a turn 19
7.3.3 Cornering whilst going down hills 19
7.4 Braking 20

7.5 Parking the Vélo Cargo. 20
7.6 Locking the Vélo 20
7.7 Using the seatbelts 20
7.8 Using the rain cover 21
7.9 Removing the seats 21
7.10 General tricycle riding rules 22
8 Maintenance and inspection 22
8.1 Adjusting and replacing the brakes 22
8.1.1 To adjust and rebalance the front brakes 23
8.1.2 To adjust the rear brake. 24
8.1.3 Replacing the brake blocks 24
8.2 Removing a wheel / replacing the tyres 25
8.2.1 Standard tyre inflation pressures 26
8.2.2 Removing a front wheel and its tyre 26
8.2.3 Removing the rear wheel and its tyre 26
8.3 Troubleshooting failure in the motor and electronic control system 28
8.4 Actions in the event of damage to the battery bank. 28
9 Warranty and repair 28
10 Electrical drawings 29
11 Vélo Cargo logbook 31
12 End user warranty registration card 32

1 Introduction

Thank you for purchasing a VeloCargo E250 electric power assisted cargo tricycle.

Vélo Électrique cargo bikes are sold as an affordable alternative to the second car or delivery vehicle. They provide low cost family or cargo transport and come with electric power assistance as standard to make the navigation of our roads comfortable and safe for the rider and its occupants. The electric assistance is predominately designed for the safe exit/ pull off from junctions into traffic streams and for the accent of hills, however it can be used as a gentle assistance to the riders pedal power input at any time.

Our cycles are assembled in the UK and are manufactured using imported and UK produced components.

The VeloCargo E250 is essentially a cycle like any other; it shares the same components such as brakes, gears, chain, seats, wheels and tyres. Like a conventional bicycle its effective and safe operation will depend on the manner in which it is used and also the necessity for frequent inspection and maintenance. Furthermore there are safety hazards associated with all cycles and this is why we ask that you read this entire manual carefully.

2 Important safety instructions

Please read these instructions in their entirety before operating the cycle and save these instructions for future reference.

WARNING: Read and save all of these instructions.

2.1 Disclaimer

The information in this manual is believed to be correct and reliable. However Vélo Électrique assumes no responsibility for inaccuracies and omissions. The user of this information and product assumes full responsibility and risk.

All specifications are subject to change without notice.

Tricycles, electrical power and battery systems are all capable of causing death or serious injury or fire if damaged, incorrectly operated, or maintained. If in doubt, ensure that all activities are carried out by trained and competent personnel.

2.2 Symbols used in this manual

WARNING:

Warning: risk of injury or death – proceed with extreme caution

PROFESSIONAL:

Professional person: highly recommended

IMPORTANT:

Important: please take note

TIP:

Tip: helpful information

2.3 General safety instructions

The Vélo Electrique cargo tricycle is inherently much safer and easier to ride that a bicycle due to the fact that it has three wheels – if one wheel hits an obstacle such as a stone or pinecone, the tricycle cannot then easily flip over as a bicycle can. Whilst on the whole the tricycle is a more stable platform to ride and transport your children or cargo, there are some very important differences to a bicycle which must be understood.

2.3.1 UK Standards Compliance

The Vélo Cargo is defined as an 'electric pedal cycle' by law rather than a 'vehicle' (a vehicle requires tax, MOT, insurance and a licence). The Vélo Electrique Cargo Tricycle conforms to the UK Standard instrument for *Electrically Assisted Pedal Cycle Regulations 1983* (SI 1983/1168), these laws whilst theoretically superseded by a more recent EU requirement have not been rescinded and still apply. These require that;

- the motor has an average power output limited to 200 W (250 W for tricycles and tandems
- unladen weight limited to 40 kg (60 kg for tricycles and tandems)
- maximum speed when power-assisted of 15 mph.
- manufacturers serial identification plate must be fitted showing motor wattage, battery voltage and weight.
- The operation of the brakes must override and disable the electric propulsion system
- The throttle control must be of a type that defaults to zero power assist when released

For electric cycles meeting these requirements, the vehicle does not require registration or periodic road worthiness assessment, and operators do not require a licence or insurance.

However operators must be at least 14 years of age.

IMPORTANT:

Important: You must be 14 years of age or older in order to ride an electric cycle

2.3.2 European Standards Compliance

If you are going to ride your Vélo Electrique in EU countries there is one difference between the UK Standards and the EU standards that must be noted. The UK allows the use of a 'twist and go' type throttle whilst the EU favours the use of what is called a 'Pedelec' power administration system. This senses when the rider is pedalling and only allows power to be applied when the rider is pedalling. This requires the fitment of a 'hall effect sensor' to the crank, this is a fairly straight forward

modification and the existing Vélo Electrique speed controller has a connector where this can be plugged in. The sensor itself fits over the crank Vélo Electrique can supply these items on request and at extra charge, fitment instructions are provided so that the job can be completed by a the owner or a cycle mechanic.

2.3.3 Electrical Modifications

Do not make any modifications to the electrical system including its mounting system, if you do so your warranty will be voided and you may risk harm to yourself and others through electric shock and electrical fires. If you still wish to modify or 'hack' your electrical system and have the appropriate knowledge to do so you must do so at your own risk and you must ensure that your modifications continue to meet the UK or EU standards, notably speed limitation and motor wattage limitation. Vélo Electrique cannot be held responsible in any way if your modifications contravene these laws.

WARNING:

Electrical Modifications: Risk of burning, fire or electrical shock if the 36V electrical propulsion system is tampered with. Similarly the battery charger should not be tampered with. Do not attempt to charge the battery with any other charger than the one provided.

PROFESSIONAL:

Professional person: All modifications or repairs to the electrical system must be made by a skilled person who fully understands the risks of working with DC and AC electrical systems.

2.3.4 Mechanical Modifications

The only modification that is permitted under warranty is that the body of the cargo box may be repainted in another colour and minor modifications to the layout of the front cargo box. Vélo Electrique welcomes your creativity in making the front cargo box suit your needs, however you must remember that you do so at your and your passengers own risk and it is your responsibility to make sure that the cycle continues to adhere to the UK or EU standards, particularly in terms of unladen weight being below 60kg.

WARNING:

Do not modify the cycle frame by welding/screwing into it, this may weaken it and cause it to fail.

Do not overload the cycle; remember that its maximum permitted unladen weight must not exceed 60kg by law.

Do not make any modifications that impede the movement of any parts of the steering or make the cycle unbalanced

3 General description

The Vélo Electrique Vélo Cargo is a three wheeled electric cargo tricycle of a design which has been around for over 100 years. The cycle comprises of a standard rear section of a bicycle with an elongated and re-enforced front section of frame that attaches to the cargo box.

The cargo box is made of 10mm marine plywood with a steel frame; this box pivots on a central shaft which utilises two heavy duty taper roller bearings around a shaft. The handlebars are connected to the rear uprights of the cargo box.

The cargo box has two bench seats with four sets of seatbelts for four children; the seats can be removed to carry loads, an animal or an adult as long as the total load capacity is not exceeded.

The electric system comprises of a 36V 10 Ah battery powering a 250W DC brushless motor controlled by a twist and go throttle and a remote control unit on fitted to the handlebars. Three different power levels can be selected on the remote control along with a power on/off switch.

The electric power being 250W only is not designed to power the cycle on its own, it requires human input.

The braking system is comprised of 3 x V-brakes which are operated by two standard brake levers on the handlebars, both of the front brakes being linked together in order to be applied by one cable.

Each brake lever has an electric power override switch which cuts power to the motor should either the brake be applied.

The rear brake is fitted with a catch-type handbrake system which allows the brake lever to be locked in the on position.

The gears are of the derailleur type with a six speed index shift controller, these gears are used in conjunction with the electric power system to maximise the rider's power input and extend the battery range.

4 Specifications

	Vélo Cargo E250
Weight (unladen with rain cover and seats fitted)	57kg
Max load (cargo box)	100kg
Max load (rider)	120kg
Max gross weight (rider + cargo + trike weight)	277kg
Width	850 mm
Height	110 mm
Length	225 mm
Front cargo box construction	10mm marine plywood
Front cargo box frame	Mild steel
Rear (cycle) frame	Aluminium
Battery Voltage	36V
Battery Amp hours	10Ah
Battery Watt Hours	360Wh

Motor Wattage	250W peak continuous
Speed control system	3 speed power limitation coupled to variable twist and go throttle on right hand of handlebars
Gears (mechanical)	Shimano brand 6 speed derailleur
Wheels Front	20 inch x 1 inch
Wheels Rear	26 inch x 1.5 inch
Tyres Front (factory spec to maximum size)	20 x 1” to 20 x 2.5”
Tyres Rear (factory spec to maximum size)	26 x 1.5” to 26 x 2”

4.1 Performance (Speed and Range)

Your Vélo Electrique cargo cycle is designed to be ridden like a normal cycle, the electric power being used only to assist your human effort. Whilst the cycle can be propelled solely by the electric power, it will dramatically reduce the range and also the amount of 'cycles' or lifespan of the battery. You also risk burning out the motor if it is allowed to grind to a halt without your pedalling assistance.

For optimum range and battery lifespan the Vélo Electrique power should be used to ascend hills, pull out of junctions and to lightly assist the rider to maintain a satisfactory speed.

If this is the case, distances of 20-50 miles are easily achievable between recharges on terrain with continual light to moderate hills with a fit adult riding the bike and using the correct gear to optimise human power input.

We recommend that you use the 'low' power setting on level to light hills and use the 'medium' power setting to pull out of junctions and to ascent lengthy or steep hills. 'Medium' power setting can be used all the time if higher road speeds are required.

Every owner's pedalling power, local terrain and traffic conditions are different and hence we cannot offer more specific figures for range and performance.

4.2 Performance (Battery Lifespan)

Before you use the battery for the first time it is best to give it a full deep charge for 12 hours. To fully condition your new battery give it complete deep charge, discharge cycles for the first three charges. This is achieved by charging your battery for 12 hours and then using the bike until the battery is completely drained. After this "conditioning" process, you can leave the battery charging as and when you require.

If you are going to leave your battery uncharged for more than eight weeks it is best left half charged. You should then re charge it every four weeks for two hours to keep it in top condition.

Always remember that you use up to three times more power when pulling off from standstill when compared to continuous speed. To preserve the life of each charge always set off using your pedalling power as much as possible.

Check the indicators on the actual battery to see how much power you have left. Please note that the indicators on the handlebar dashboard (if purchased) lights do not necessarily show the amount of power you have left, but the amount of load the battery is experiencing at any one point. If the lights go down to "Empty", then this is a strong indication that you ought to be pedalling more to take some of the load off the battery. This will improve the battery life cycle.

Do not expose the bicycle or battery pack to fire, heat sources, acid or alkaline substances.

For best results, always charge the battery at room temperature, batteries behave very strangely if cold, for example a battery being charged at zero Celsius is only able to receive half the charge that it would when charged at room temperature.

Always make sure the battery is turned off before detaching/connecting it.

9- If your battery is damaged or appears to be overheating for any reason immediately return it to your retailer for advice and a safety check.

5 Operation

5.1 Pre ride safety checks

As with any pedal cycle you should perform basic safety checks before each ride.

5.1.1 Check the brakes

The safe operation of the Vélo Cargo is largely dependent on the correct set up of the brakes. The cycle has two front V-brakes and one rear V-brake. If the front brakes are out of balance (one bites before the other) the cycle may pull strongly to the left or right. You should not ride the cycle in this case, but if you absolutely must you should ride slowly and use the rear brake only using the fronts as a last resort.

If the front brakes are out of balance you must re-balance them as detailed in the maintenance section.

Check that the rear brake is also operational and that the handbrake can hold the cycle. If the wheel still rotates when the handbrake is on full then you need to adjust the back brake also – see maintenance section.

5.1.2 Check the tyres are inflated to the correct pressure

If the tyres are not inflated to the correct pressure, your safety is at risk. You should ensure that the tyres are inflated to the correct pressure as per the table below. If you don't have a tyre pressure gauge it is advisable to buy a hand held one or purchase a pump with one built in. The tyres can also be inflated at service station automatic pumps; although the accuracy of these pumps gauges can be considerably variable, hence it is always better to have your own tyre pressure gauge.

The correct pressures are listed below.

Front Tyres	**45 PSI**
Rear Tyre	**60 PSI**

IMPORTANT: If your front tyres have different pressures, you may find that the cycle pulls to the direction of the side with the lowest pressure. If your tyre pressure is too high you risk the rapid blow out of a tyre which can cause the cycle to swerve dangerously.

TIP:

Tip: If you can't remember the correct tyre pressure, inflate to the maximum pressure indicated on the sidewall of each tyre (which is the same)

5.1.3 Adjusting the handlebars

The handlebars are adjustable in height by 17cm, the most comfortable position being to have your forearm horizontal after you have adjusted the saddle to suit your height.

To adjust the handlebars, simply undo the 10mm lock nut and then unwind the M6 socket head screw with an Allen key. Move the handlebars to the desired position and then firmly tighten the socket head screw. Then firmly tighten the 10mm lock nut to prevent the screw from loosening.

Removing the battery

5.2 Removing and charging the battery

5.2.1 The battery charger

Your battery can be charged in or out of the Vélo Cargo. The charger must be plugged into an AC wall socket and be protected from moisture. The battery is connected to the charger using the socket underneath the battery handle.

A Red light on the charger means the battery is charging. When the red light turns green, the battery is fully charged.

NB - Please ignore the green light and carry on charging for 12 hours for the first 3 charges to condition your battery.

IMPORTANT: *Your VeloCargo's electronics are rain and splash resistant and can be used in all weathers. However the electrical components, such as motor, battery, and controller, must not be submerged in water.*

TIP:

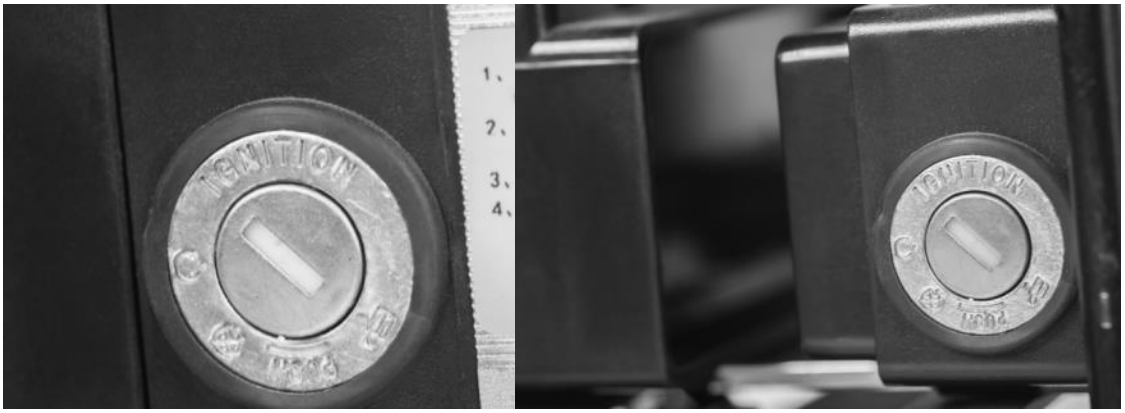
Tip:

- Always connect the charger to the battery before connecting it to the mains.
- Always disconnect the charger from the mains before disconnecting the charger from the battery.
- Do not leave the charger connected to the mains when not in use.

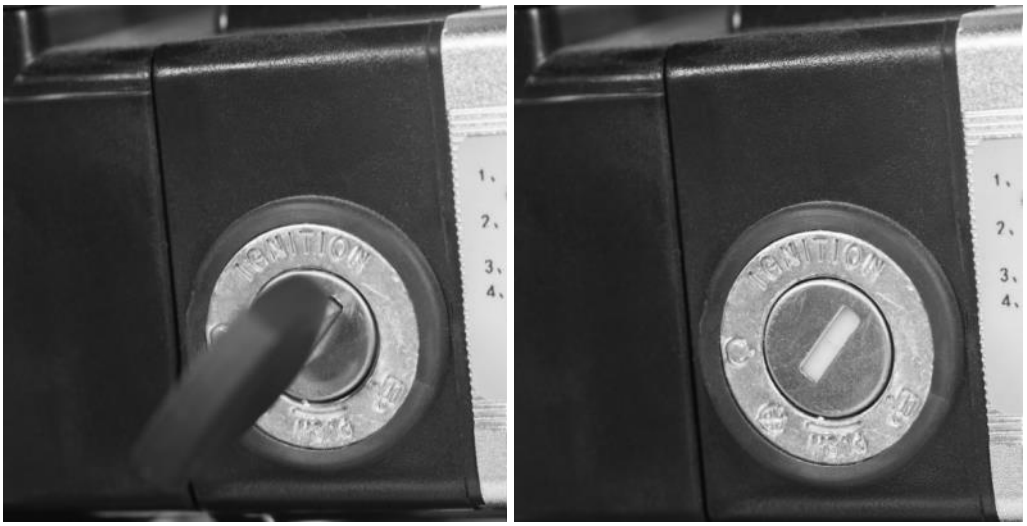
5.2.2 Turning the battery on and off and removing from the cycle

All Vélo Cargo's from frame no VEL004 onwards have a car type ignition key. It has three positions

- **Battery remove** – in this position the battery lock is disabled and the battery can be safely removed using the handle. The key must be turned fully anticlockwise and the key must be removed in order for the battery to be able to slide backward on its rail.



- **Battery off but locked** – in this position the battery is locked into the bike but is isolated (off) this position is useful for when you leave the bike locked up whilst on a trip. It prevents the battery from being stolen (to a certain extent) and also prevents children or others from enabling the electric system.
  NB: In this position the key can be removed.



- **Battery on** – in this position the handlebar speed control is enabled and the electrical system is live. It is not advisable to leave the ignition switch in this position when the bike is in use as the battery will slowly be drained of power and will probably be flat when you come to use it. The key must first be depressed and then it can be turned fully clockwise to the on position.

5.2.3 Refitting the battery

The battery is secured in position by a rail and a locking pin. Care must be taken to ensure that the battery is sliding on the rail and not above it when refitting.

TIP:

Tip: If the battery is not secure or won't plug into the electrical contacts at the end then it is most likely that it is not on the rail properly. In which case, withdraw it and re-insert it correctly.

5.3 Adjusting the saddle

The saddle can be adjusted like a normal bicycle saddle and has a lever operated quick adjuster. On no account should the saddle be raised past the 'max' stamped position on its stem.

5.4 Check all nuts and bolts are secure

The Vélo Cargo is factory adjusted to ensure that all of the nuts and bolts are attached to the right tightness (torque) and either use Nyloc security nuts or a thread locking compound is used to stop the nuts coming loose.

If the trike starts to rattle during a journey you should immediately stop and inspect the source of the noise and rectify it or if not rectify it once at your destination if deemed non critical.

The most important securing nuts are the wheel nuts and the cargo box centre pivot nut.

5.4.1 Wheelnuts

Once a week give each wheel a wobble to check for looseness, if it is loose take care to re-align it in the centre of the brakes/frame and re-tighten it.

5.4.2 Cargo box pivot bearing nut

Once a week check the front cargo box pivot bearing nut for tightness. The way to do this without getting underneath the trike is to sit on the saddle and gripping the handlebars try and rock them away from you (upward pressure) and then towards you (downward pressure) in short motion. If there is a noticeable rock forwards and backwards or clunking then the nut will need re-tightening. This requires a 27mm socket or spanner, if you do not have one of these then just take the trike to a local garage/bike shop and they should be able to adjust it for you at little or no cost in just a few minutes.

It only needs to be tightened so that there is not rocking motion, if the cargo box becomes stiff to steer then it is too tight and needs backing off a little.

6 Packing List

The Vélo Électrique Vélo Cargo is shipped to most parts of the UK unboxed by Vélo Électrique drivers. Where shipped in a case, the cycle will be completely assembled and will just require the handlebars to be fitted in their sockets, the saddle fitted and the rain cover fitted.

You should inspect on receipt for damage or missing parts. This should be done before the carrier departs and any damage informed immediately to the driver or photographed prior to further unpacking.

Single Carton

Shipping dimensions:	275 x 35 x 30 cm (108” x 14” x 12”)
Shipping weight:	100kg (132 lbs)

6.1 Recommended tools

It is essential that you purchase a bicycle repair kit including common Allen key sizes and a small wrench or 10mm spanner. These are the essential sizes for adjusting the brakes and handlebars.

In addition an extended tool kit can be made up to cover all of the possible tools needed to assemble/disassemble the trike.

- Spanners
  8, 10, 13, 14, 15, 18 and 27mm
- Allen (hex) keys
  (2, 3, 4, 5, and 6 mm)
- Torque wrench
  (5-250Nm)
- Sockets for torque wrench
  8, 10, 13, 14, 15, 18 and 27mm

- Phillips screwdrivers large/small
- Long nose pliers
- Multi-meter

7 Riding the Vélo Cargo for the first time.

Before riding the Vélo Cargo for the first time, make sure you have completed the safety checks indicated in this manual. It is suggested that your first practice ride should be on a quiet back street or park with some sharp corners and a hills to get practice on cornering and power optimisation on hills.

7.1 Pulling off on level ground

1. Ensure that the saddle and handlebars are set to suit your height.
2. Turn on the battery power as described in section 4 by depressing the key and turning fully clockwise.

3. On the handlebars press the on switch on the remote control unit – check you battery level on the meter, if only the first light is on next to the 'L' and is flashing it means that you will need to charge the battery before using.

4. Cycle the 'mode' switch through to the lowest power setting

5. Release the handbrake (if applied) by pulling the brake lever towards you and releasing.

6. Select the lowest gear on the gear selector (push the bottom lever until the chain is on the biggest sprocket on the rear wheel) – the top lever is for changing down into a faster gear when you accelerate.

7. Begin to pedal AT THE SAME TIME as you apply the motor power by twisting the throttle fully round. The electric motor's life will be greatly prolonged if you do this.

8. As you speed up, you can change down the bike gears as you would on a normal bike and slowly decrease the power on the twist and go until you need it again on a slope or to pull off again or to maintain a higher top speed.

9. You can change power assistance 'mode' on the remote control on the handlebars at any time when you are riding and you will notice a marked difference in the power and speed of the bike.

7.2 Pulling off on a hill

Select 'high' power and repeat the above steps, you will most likely have to stay in the lowest chain gear in order to ascent the hill. Every riders power and cargo are different and so there is no specific rule for what chain gear you should be in to ascent a hill.

7.2.1 Is the hill too steep????

If you are ascending a hill and with the assist power on 'high' and with the chain gear in the lowest gear and the Vélo Cargo grinds to a halt, you must release the throttle to avoid burning out the motor. Apply the brakes, step off the cycle and walk the Vélo Cargo up the hill whilst still using the throttle to provide electric assistance. The Vélo cargo will be able to ascend much steep hills without your weight on the saddle.

IMPORTANT: The Vélo Cargo's motor can be severely damaged by applying power to it with the back wheel not turning. You must release the power if the Vélo ever grinds to a halt.

TIP:

Tip:

- Get off and walk on very steep hills and use the power to push the bike up the hill without you on it.
- Always use the lowest chain gear on steep hills and provide as much effort as you can. You will find that the Vélo Cargo can go up some surprisingly steep hills with an adult and two children in it.

7.3 Cornering

The key difference between a 'tadpole' tricycle and a bicycle is that it can't lean into turns and hence if the rider doesn't lean towards the centre of the turn the bike can potentially go on two wheels or worst still roll on its side. This is not something to worry about in the long run as you learn to turn corners on a tricycle the same way you learned to ride a bicycle. For most people it takes only a few minutes to realise the difference.

The Vélo will also have more tendency to tip if you have no load in the front section, so extra care must be taken when riding like this.

7.3.1 Entering a turn.

- Lean to the centre of the turn, especially on very tight turns to transfer your weight towards an imaginary centre of a roundabout for example.

7.3.2 Whilst in a turn

- Do not increase your speed by using the throttle / pedals as you progress through the turn – keep steady speed.

7.3.3 Cornering whilst going down hills

- As you can imagine if you corner on a hill you have an additional risk of making the trike tip as there is a tendency to go fast and you have the slope of the hill working against your centre of gravity.

IMPORTANT: The risk of toppling the trike is significant if these golden rules are not adhered to. You risk damaging the trike, yourself and your precious cargo.

TIP:

Tip:

- **GO SLOW AROUND CORNERS UNTIL YOU ARE CONFIDENT AT RIDING THE BIKE.**
- Always lean into your turn.
- Do not accelerate whilst in a turn.

7.4 Braking

The Vélo Cargo has three strong brakes which can pull the cycle up very quickly in the event of an emergency stop. As with a car, the front brakes deliver the most stopping power as the inertia of the trike 'pins' the front of the bike down to the road.

It is possible to lock up all three wheels in the wet or get the rear wheel off the ground in an emergency stop situation, if this is the case you will have to 'dab' the brakes as you would in a car to stop them from locking up.

The brakes should be applied in the following way, back brake first to decrease speed and then bring in the fronts slowly until you stop. There is no hard and fast rule, you will just notice that this is the same thing you do on a bicycle because it delivers the best results.

If you are riding on muddy ground with one front wheel in the mud and the other on a hard surface, the wheel in the mud may skid before the other does causing uneven braking and potentially causing a swerve. Hence caution should be applied when using the front brakes when the wheels are on different surfaces

7.5 Parking the Vélo Cargo.

The Vélo Cargo has a handbrake which can keep it from moving on level ground or on slopes only. It should be noted that the handbrake can be released quite easily by children fiddling with it. Hence, never leave your Vélo with the handbrake on without it being near to or up against a wall/barrier of some kind so that if the brake is released it won't roll anywhere far and cause damage to the trike, occupants and parked cars for example.

7.6 Locking the Vélo

It is best to lock your Vélo Electrique Cargo Trike by using a flexible heavy duty chain or cable lock. It is best to pass the lock through one of the front wheels, the front frame corner and a fixed object like railings or a bike rail. It is much better to lock the front rather than the back wheel as it makes it much harder to manhandle if a thief were to try and steal it. For overnight storage in a street Velo recommends that you remove the battery, the saddle and uses locks front and rear.

7.7 Using the seatbelts

There are four three-point seatbelts for children provided as standard. These are fully adjustable and can also be remounted to provide further adjustment. The seatbelts are adjusted by pulling the adjustment buckles up or down the strap to lengthen or shorten them.

If you need to shorten the seatbelts further, you can undo the seatbelt mounting bolt under the seat and using a bradawl or red hot phillips screwdriver tip, poke a new hole through where suitable and then remount.

7.8 Using the rain cover

The rain cover comes as standard with a new Velo Cargo. It has zips at each end for access, however it is best not to encourage the use of these if you have small children as they can easily break the zips by forcing themselves in and out of the cargo box.

The best way to fit the rain cover is to make sure both zips are done up, and hook it over the front frame hoop and then pull it down over the rear as showing in the photo sequence below. Take care to ensure that the Velcro straps are at the rear as these are used to fix the raincover in position around the base of the handlebars.

7.9 Removing the seats

Both of the front seats can be completely removed. To do this, undo the Phillips screw on either side of the seat (inside the cargo box). The seats then withdraw including the lower section of the seatbelt. Refitting is the reverse of removal.

7.10 General tricycle riding rules

DO

- Lean, lean, lean, into turns!!!
- Go slow on turns
- Keep both hands on the handlebars at all times except when signalling
- Keep your eyes on the road

DON'T

- Turn your body to the side and take your hand off to look behind you, you will cause the trike to swerve
- Take your hand off the handlebars to manage your cargo, you will cause the trike to swerve
- Accelerate on turns
- Ride with your kerbside wheel too close to the kerb or in a rough/dirty gutter as this will cause you to potentially hit the kerb and have an accident if you hit a large stone or similar.

8 Maintenance and inspection

The Vélo Cargo uses standard bicycle components all round and standard E-bike components in the 36V electrical system. Spare parts are hence easily obtained either from Vélo Electrique or from cycle or e-bike stores. There are several basic maintenance steps that are very important to pay regular attention to, these being the condition and adjustment of the brakes, the condition of the tyres and the tightness of nuts and bolts, most importantly the cargo box pivot bearing /shaft.

8.1 Adjusting and replacing the brakes

The brakes are a of the standard V-brake type, with replacement parts being available at any cycle store or via Vélo Electrique. It is likely that your brakes will need adjusting from time to time and will most likely need the pads replacing every year or when they have worn down to the line.

WARNING

If the front brakes are out of balance (one bites before the other) the cycle may pull strongly (and dangerously) to the left or right. You should not ride the cycle in this case, but if you absolutely must you should ride slowly and use the rear brake only using the fronts as a last resort and rebalance the brakes as soon as possible.

There are two ways to adjust the brakes, if the front breaks are balanced and are just not strong enough, or the rear break is not holding the bike on the maximum handbrake setting it is likely that the cable has just naturally stretched or the pads have worn a little. In this case the brakes can be adjusted without any tools by winding out the adjustment wheel on each of the brake levers.

When this adjustment is fully used the cables must be re-clamped at the V-brake assembly itself on the wheel. The following two sections describe how to do this.

8.1.1 To adjust and rebalance the front brakes

The brakes can be tightened individually if one is just slightly out or better still start from scratch and set both brakes.

Wind the adjustment wheel on the brake lever in so that it shows about 2mm of adjustment.

- With an Allen key slacken the brake cable clamp on one of the front brakes and using your hands or pliers pull it tight whilst clamping the brake pads tightly against the wheel rim with your other hand – you can use a G-clamp to clamp the brakes to the wheel rim to make this easier.

- Tighten up the brake cable clamp noting that it will pull the cable slightly as you tighten it.
- Repeat this process on the other front wheel.

- The bike should now be hard to push as both front brakes should be rubbing
- Now slacken off the adjustment on the front brake lever to loosen the brakes a little, this should now allow both wheels to rotate with the brake lever released and the pads should bite fairly strongly with light pressure
- Test for balance by pushing the trike forward, if it pulls to the left, the right brake is not biting at the same time and needs adjusting further, if it pulls to the right, the left brake is not biting soon enough and needs adjusting earlier.
- Properly balanced front brakes should apply at the same time and should not pull the bike to the left or right at any stage of their application.

8.1.2 To adjust the rear brake.

- Wind the adjustment wheel on the brake lever in so that it shows about 2mm of adjustment.
- With an Allen key slacken the brake cable clamp on one of the front brakes and using your hands or pliers pull it tight whilst clamping the brake pads tightly against the wheel rim with your other hand – you can use a G-clamp to clamp the brakes to the wheel rim to make this easier.
- Tighten up the brake cable clamp noting that it will pull the cable slightly as you tighten it.

- The bike should now be hard to push as the rear brake should be rubbing slightly.
- Now slacken off the adjustment on the rear brake lever to loosen the brake a little, this should now allow the wheel to rotate with the brake lever released and the brake blocks should bite fairly strongly with light pressure.
- The handbrake should now hold the bike properly when applied.

8.1.3 Replacing the brake blocks

The brake blocks can be replaced in the following manner.

- Release the brake cable from the brake assembly by squeezing together the brake arms and unhooking the brake cable from it.

- With the brakes sprung open, undo the Allen socket head bolt that holds the brake pad to the brake assembly.
- Fit the new brake block and loosely tighten

- Press the brake block against the wheel rim as if it were being applied by the brake lever, align it so that it is flat on the wheel rim and it doesn't not touch the tyre (allow about 1mm of clearance).
- Whilst still holding the brake block against the wheel rim, tighten the securing bolt.
- Repeat on other brakes
- Follow steps in section 7.1.1/2 to adjust and balance the brakes if necessary.

8.2 Removing a wheel / replacing the tyres

Changing a wheel on a Cargo Trike is a little different to a conventional bicycle. These differences particularly the changing of the rear tyre/wheel and its electric connections should not be attempted by someone without good technical experience.

PROFESSIONAL:

Professional person: highly recommended – a bike shop is your best bet.

The Vélo Electrique cargo trike range uses 20" front tyres and 26" rear tyres as standard. Any tyre can be fitted to the rim provided it does not rub on the frame or mudguards and does not exceed the dimensions listed in the table below. If a replacement tyre is fitted that is non-standard, inflate that tyre to the maximum pressure indicated on its sidewall.

Wheels Front	20 inch x 1 inch
Wheels Rear	26 inch x 1.5 inch
Tyres Front (factory spec to maximum size)	20 x 1" to 20 x 2.5"
Tyres Rear (factory spec to maximum size)	26 x 1.5" to 26 x 2"

IMPORTANT: *If you are replacing a front tyre, replace with the same type. If this is not possible you must replace both front tyres to avoid potentially dangerous handling problems.*

TIP:

Tip:

- Check you tyre pressures frequently!
- Check that your wheel isn't buckled; a buckled wheel will not brake well and will wear the tyre in only one spot potentially causing a blow-out.
- Check your tyres frequently for even or uneven wear – replace if necessary

8.2.1 Standard tyre inflation pressures

Front Tyres	**45 PSI**
Rear Tyre	**60 PSI**

8.2.2 Removing a front wheel and its tyre

The removal of the front wheel is fairly straightforward and requires a 15mm spanner. There are special locking washers under each nut; these have a small tab that locates in the small hole on the frame. Care must be taken not to damage these washers, nor to over tighten the nuts.

- Release the brake cable from the brake assembly by squeezing together the brake arms and unhooking the brake cable from it. The brake arms should swing open allowing the wheel to pass through the assembly.
- Undo the two nuts on the wheel with sufficient slack to allow the locking washer to come free of their holes.
- Withdraw the wheel.
- Replacement is the reverse of the above steps, taking care to orient the locking washer in the locating hole.

8.2.3 Removing the rear wheel and its tyre

Changing the rear tyre or removing the wheel requires quite a lot of care as the hub motor has wires that connect it to the control unit, these wires cannot be disconnected at the wheel, and hence if the whole wheel is to be removed then the power cables must be disconnected at speed controller. This operation requires the use of a skilled professional.

PROFESSIONAL:

Professional person: highly recommended – a bike shop is your best bet.

PLEASE GIVE THEM THIS MANUAL AND ASK THEM TO FOLLOW THE STEPS BELOW.

It is possible to change a tyre or repair a puncture without having to disconnect the rear wheel however it again requires a skill and care to avoid damaging the control and power cables.

To change a tyre /repair a puncture without disturbing the power cables;

- Remove the battery from the trike to disable the electronics
- Place a stand of some sort underneath the crank (pedals) so that the rear wheel is about 3 inches off the ground.
- Release the brake cable from the brake assembly by squeezing together the brake arms and unhooking the brake cable from it. The brake arms should swing open allowing the wheel to pass through the assembly.
- Undo the two nuts on the wheel with noting that on the left hand side, the nut cannot be removed due to the cables that run down the core of the axle.
- Lower the wheel to the ground taking care not to stretch the power cable wires (you may need to cut through one of the cable ties if there isn't enough slack in the cable.
- With the wheel in this position it is possible to remove the tyre or replace an inner tube / repair a puncture, however it is hard and absolute care must be taken not to tug at or damage the power/control cables.

- Replacement is the reversal of the above steps, taking care to hook the derailleur and chain around the cassette.

To change remove the rear wheel completely by disconnecting the power cables

- Repeat the steps above to release the wheel from the frame
- Follow the cable from the left hand side up to the underside of the battery tray as you do so you will need to cut through each of the cable ties holding the wire in place, make a note of where each of these are as you will have to replace them with new ones once the wheel is refitted.
- Remove the cover of the motor controller (black enclosure that battery pushes into). The screws holding this in are very small and must be not be lost!
- Under the cover you will see the motor controller, this can be carefully pulled out to reveal all of the connectors that connect the brake overrides, the handlebar speed controller, throttle and motor. Not that some connectors are unused.
- Follow the motor wires in through the hole in the bottom of the compartment; there should be 3 x larger gauge power wires and one square white connector block. It is these that you need to separate.
- Once disconnected you can feed these wires down through the whole in the bottom and then completely remove the wheel for repairs on the work bench.
- Replacement is the reverse of the above steps, but take extreme care to ensure that the electrical connectors are properly pushed back together including their sealing covers where fitted. You will also need to re-attach the cable to the frame with cable ties; these can be bought at any hardware/bike store.

8.3 Troubleshooting failure in the motor and electronic control system

If the Vélo Électrique VeloCargo motor stops working for any reason or is behaving strangely, you must contact Vélo Electrique in the first instance to assist in troubleshooting the cause of the problem over the phone.

PROFESSIONAL:

Professional person: Do not attempt to repair yourself without talking to Vélo Electrique first.

8.4 Actions in the event of damage to the battery bank.

The Lithium battery has typically 360Watt/hours or energy storage capacity. Putting this in simple terms, that's enough energy to power 3.6 100 Watt electric light bulbs for one hour. The battery is deliberately encased in a thick aluminium extrusion to protect it from damage.

If the battery is ever damaged in an accident or by other means, there may be the risk of a small electrical fire or explosion as with all batteries. The battery is protected by a fuse to prevent it from being damaged by short circuits in the rest of the electrical system. However is the battery case is ever damaged you may notice sparking or smoke coming from it.

If possible quickly perform the following steps should you see smoke/sparks emitting from the battery.

- Get the whole trike outside to avoid any risk of the situation worsening by placing buildings in jeopardy
- If possible try and remove the battery from the bike by using its handle and releasing it with the key – place it on the ground on anything that is not going to burn, e.g. concrete/grass and wait at a safe distance for it to stabilise
- If it continues to smoke or catches fire, call the fire brigade.
- If it stabilises move it to a safe place outside where it cannot be tampered with or moved by anyone and call Vélo Electrique or the fire brigade for advice on what to do next.

WARNING

For your safety, if in doubt, call the fire brigade if you notice smoke or a fire in your Vélo Electrique power system.

9 Warranty and repair

Please see Vélo Électrique terms and conditions for details of the warranty. These are available on request or may be downloaded from the Vélo Électrique website. Please keep your invoice as proof of purchase.

Please fill in the warranty registration card at the end of this manual when you have received your trike and send a copy to Vélo Électrique.

The warranty is dependent on correct operation and maintenance of the Vélo Électrique VeloCargo

The Vélo Électrique warranty applies to customers who have purchased directly from Vélo Électrique or from Vélo Électrique authorised distributors or Vélo Électrique authorised installers.

As stated in the Vélo Électrique terms and conditions the warranty is void “if you have used the product for purposes beyond its intended use or in excess of its specified capacity or if you or others have altered, repaired, or tried to repair or tampered with it”. If a repair is required then contact Vélo Électrique or a Vélo Électrique distributor to either gain approval or arrange for Vélo Électrique to carry out a repair.

Except with prior authorisation from Vélo Électrique or a Vélo Électrique authorised distributor there are no user repairable parts within the electronics system.

Vélo Électrique reserves the right to change specifications without prior notice in the interest of product development.

10 Electrical drawings

11 Vélo Cargo logbook

Date	Estimated mileage	Observations / service items / damage

12 End user warranty registration card

Please fill in and mail or email a photocopy/scanned PDF of this warranty registration card back to Vélo Électrique. Please keep the original in this owner's manual for your future reference. We will not use this information for marketing purposes or sell it.

Vélo Électrique Ltd
Poole Dorset, UK
Web: www.veloelectrique.co.uk
Tel: +44 (0)7917 698 438
info@veloelectrique.co.uk

About you:

Your name:	
Your address: (include post or zip code)	
Your telephone:	
Your email:	
Heights of riders:	

About your trike:

Trike serial number:	
Battery serial number:	
Trike model :	
Box colour:	
Frame Colour:	
Estimated weekly mileage/km:	
Likely cargo box load type:	

Vélo Électrique Ltd

Poole,

Dorset, UK

Web: www.veloelectrique.co.uk

Tel: +44 (0)7917 698 438

info@veloelectrique.co.uk

Vélo Électrique® and Velo Cargo are registered trademarks of Vélo Électrique Ltd, manufacturers of custom electric cargo tricycles.

© Vélo Électrique, 2013